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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/676,673	10/01/2003	Ronald A. Askeland	10006481-4	8222

22879 7590 07/30/2008

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EXAMINER	
NGUYEN, LAM S	

ART UNIT	PAPER NUMBER
2853	

NOTIFICATION DATE	DELIVERY MODE
07/30/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/676,673	ASKELAND ET AL.	
	Examiner	Art Unit	
	LAM S. NGUYEN	2853	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-9,15-18 and 20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-9,15-18 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

1. Claims 1-9, 15-18, and 20 and are rejected under 35 U.S.C. 103(a) as being unpatentable over Courtney (U.S. 5610638) in view of Hackleman (US 5742305).

Referring to claims 1, 3, and 15-16:

Courtney discloses a printhead assembly comprising:

an ink supply coupled to the printhead assembly for providing ink (*column 1, lines 43-45: An associated ink supply provides ink demand to the ink jet head*);

a scanning carriage supporting the printhead assembly to scan the printhead assembly across a sheet for printing a swath of ink thereon (*column 1, lines 49-53: Courtney cites reference US 4748453 (Lin et al.) incorporated as reference, in which Lin et al. (FIG. 1) teaches a scanning carriage supporting the printhead assembly to scan the printhead assembly across a sheet for printing a swath of ink*);

a nozzle member couple to the ink supply and having plural nozzles (*column 1, lines 15-16*); and

a controller (*FIG. 1, element 12*) that receives print data (*column 3, lines 50-52: The CPU 12 receives the print data and stores it in the memory 18*), wherein the controller is configured to assign pixel locations of the ink drops based on the print data and then

register the pixel locations at respective primitive firing addresses (*column 1, line 30-45: Print data of each pixel along a pass is applied/assigned to address of corresponding even or odd nozzles/jets in accordance to the direction that the printhead is traveling (left to right or right or left)*), and analyze the data to determine a firing pulse rate (*FIG. 2: Based on print data (S1), either single pass mode or double pass mode is selected. The firing pulse rate thus is determined accordantly. The firing pulse rate in the double pass mode, for example, is half of that of the single pass mode*) of the heater elements in the heater array for controlling the ejection of ink drops from the plural nozzles to maintain accuracy and precision of droplet placement by limiting the number of nozzles that fire at a given time (*column 1, line 35-39: Based on print data mode, either even or odd nozzles are simultaneously fired. By firing nozzles in alternating mode, the interference between ink droplets jetted by adjacent nozzles is reduced, so the accuracy and precision of droplet placement are maintained*) while simultaneously decreasing data rate of firing of each nozzle (*column 1, line 36-39: As a result from jetting fires in alternating odd, even, odd etc in the double pass mode, the data rate of firing of each nozzle is reduced compared to the data rate of firing of each nozzle in a single pass mode*) **(Referring to claims 4, 6, 8, 17)** and data rate, memory, power, and ink supply are decreased (*Since a half number of all nozzles are fired at a time, the memory for storing the corresponding print data of used corresponding heaters, the power needed for firing corresponding heaters, and ink supply for corresponding heaters are decreased comparing to the ones in a single pass mode (column 1, line 43-45*)) **(Referring to claims 2, 5)**, and wherein controlling firing order of the nozzles to produce an ordered pattern to reduce of banding on print media (*column 4, line 38-44: the band*

is caused by smearing and blending together of adjacent wet ink dots) **(Referring to claims 9 and 20)**.

Courtney, however, does not disclose wherein a predefined number of nozzles are offset and wherein a portion of the nozzles of the nozzle member aligned horizontally with dot column correction.

Hackleman discloses an ink jet printer comprising an inkjet printhead assembly having a plurality of nozzles that are offset (*FIG. 2*), and a portion of the plurality of nozzles positioned in the nozzle member to align horizontally to perform dot column correction (*column 2, line 34-40*) **(Referring to claim 7 and 18)**.

Therefore, it would have been obvious for one having ordinary skill in the art at the time the invention was made to modify Courtney's printhead assembly to offset the plurality of nozzles and to align the plurality of nozzles horizontally with dot column correction as disclosed by Hackleman. The motivation of doing so would have been to reduce the cross-talk problem between two adjacent nozzles and to allow a column of dots to print within a tolerable error criteria in order to gain the printing quality as taught by Hackleman (*column 2, line 32-34*).

Response to Arguments

Applicant's arguments filed 4/23/08 have been fully considered but they are not persuasive.

First of all, in response to the Applicant's arguments, the Examiner cites that Courtney reference teaches "a scanning carriage supporting the printhead assembly to scan the printhead assembly across a sheet for printing a swath of ink thereon" (*Beside the Lin reference incorporated as reference, Courtney (column 3, line 65 to column 4, line 10) also teaches such*

claim limitation). In addition, while both Courtney and Hackleman teach a nozzle member coupled to the ink supply and having a plurality of nozzles, Hackleman also teaches wherein the nozzles are offset (FIG. 2). As a result, the combination of Courtney and Hackleman teaches every elements of the claimed limitation "a scanning carriage supporting the printhead assembly to scan the printhead assembly across a sheet for printing a swath of ink thereon; a nozzle member coupled to the ink supply and having plural nozzles, wherein a predefined number of nozzles are offset". Moreover, the motivation to arrange Courtney's plurality of nozzles in an offset manner as taught by Hackleman is well known in the art as a technique to reduce cross-talk problem between adjacent nozzles while gaining the dots resolution. In order to support for such statement, the Examiner provides the following references that teach arranging nozzles in an offset manner to reduce cross-talk effects. Keefe et al. (US 5638101) teaches a plurality of nozzles/orifices arranged in an offset pattern to minimize cross-talk effects between adjacent vaporization chambers (column 20, lines 25-37). Shinkoda et al. (US 6648468) teaches a plurality of nozzle arrays arranged offset from one another to achieve high resolution expulsion in a single pass, while maintaining a sufficient spacing between adjacent nozzles to avoid cross-talk between nozzles (column 12, lines 40-54).

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LAM S. NGUYEN whose telephone number is (571)272-2151. The examiner can normally be reached on 7:00AM - 3:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, STEPHEN D. MEIER can be reached on (571)272-2149. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LAM S NGUYEN/
Primary Examiner, Art Unit 2853